

Remarks

Favorable reconsideration of this application, in view of the above amendments and in light of the following remarks and discussion, is respectfully requested.

Claims 1-6 and 12-25 are currently pending in the application; Claims 1-6, 12, and 13 having been amended, and new dependent Claims 18-25 having been added, by way of the present response. Applicants respectfully assert that support for the changes to the claims is self-evident from the originally filed disclosure, including the original claims, and that therefore no new matter has been added.

In the outstanding Office Action correction of the abstract was required; Claims 2-5 were objected to because of informalities; Claims 1-5 were rejected under 35 U.S.C. § 112, second paragraph; Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over an excerpt from a Handbook to Kern et al. (Handbook to Kern) in view of an excerpt from a Journal to Kern et al. (Journal to Kern); and Claims 1-6 and 13-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Handbook to Kern in view of the Journal to Kern and in further view of Great Britain Publication no. 2 154 434 to Herdtle et al. (Herdtle).

As stated above correction of the abstract was required. In response, Applicants have amended the abstract so as to be in proper format, including being within a range of 50 to 150 words.

As stated above Claims 2-5 were objected to because of informalities. In response, Applicants have amended Claims 4 and 5 to recite “said wet treatment method is used in said rinsing step such that the desired liquid is used to rinse a chemical employed in said chemical processing step,” thereby stating that the desired liquid is used in the rinsing step and a chemical is employed in the chemical processing step. Applicants have further amended Claims 2-5 to remedy informalities and to place the claims in better conformity with standard

U.S. practice. Thus, Applicants respectfully request that the objection to Claims 2-5 be withdrawn.

As stated above Claims 1-5 were rejected under 35 U.S.C. § 112, second paragraph. In response, Applicants have amended independent Claim 1 to recite “an additional amount of said desired liquid;” have amended dependent Claim 3 to recite “said sub-step is conducted before a final treatment in at least one of said chemical processing step and said rinsing step;” and have amended Claims 2 and 4 to remove the recitations of “as tending to allow said desired liquid to remain on said surface of said substrate.” Applicants have further amended each of Claims 1-5 to place the claims in better conformity with standard U.S. practice. Thus, Applicants respectfully request that the rejection of Claims 1-5 under 35 U.S.C. § 112, second paragraph, be withdrawn.

As stated above Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Handbook to Kern in view of the Journal to Kern. Claims 1-6 and 13-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Handbook to Kern and the Journal to Kern in further view of Herdtle. Applicants respectfully request that the rejections of the claims be withdrawn for the following reasons.

The present invention is directed to a wet treatment method as well as a method of treating a substrate. As recited in independent Claim 1, a substrate under treatment is treated with a desired liquid while causing the substrate to revolve around an axis of rotation outside the substrate such that the desired liquid flowing on a surface of the substrate is maintained flowing under a centrifugal force greater than gravitation, the surface of the substrate disposed on a horizontal plane perpendicular to the axis of rotation. The substrate is treated while supplying an additional amount of the desired liquid at a flow rate at least equal to a discharge rate of the desired liquid, the additional amount of the desired liquid provided to the substrate only in a direction perpendicular to the axis of rotation. A top cover of a

chamber, in which the desired liquid is supplied to the substrate, is directly sprayed with the desired liquid. The substrate is evenly treated at the surface thereof with the desired liquid while avoiding development of such a situation that flows of the desired liquid run against each other on the surface of the substrate or a flow of the desired liquid stagnates on the surface of the substrate. Independent Claim 12 recites rotating the substrate about an axis disposed apart from the substrate, a surface of the substrate disposed on a horizontal plane perpendicular to the axis. A liquid is supplied to treat the surface of the substrate in a direction only perpendicular to the axis. A top cover of a chamber, in which the liquid is supplied to the substrate, is directly sprayed with the liquid.

The Handbook to Kern discusses wafer contamination and cleaning. Applicants respectfully assert that the Handbook to Kern does not teach or suggest, however, the claimed features of directly spraying a top cover of a chamber with a liquid, as recited in independent Claims 1 and 12. Specifically, Applicants respectfully assert that the Handbook to Kern does not show or state directly spraying a top cover of the process chamber in Figure 7, for example.

In particular, independent Claim 1 recites “directly spraying with the desired liquid a top cover of a chamber in which the desired liquid is supplied to the substrate,” and independent Claim 12 recites “directly spraying with the liquid a top cover of a chamber in which the liquid is supplied to the substrate.”

The Office Action relies of the Journal to Kern and Herdtle to overcome the deficiencies of the Handbook to Kern. Applicants respectfully assert that the Journal to Kern does not remedy these deficiencies, however, for the following reasons.

The Journal to Kern discusses wafer cleaning technology. Herdtle is directed to a machine for washing circuit boards. Applicants respectfully assert that neither the Journal to

Kern nor Herdtle teaches or suggests, however, the claimed features of directly spraying a top cover of a chamber with a liquid, as recited in independent Claims 1 and 12.

Thus, Applicants respectfully assert that none of the Handbook or the Journal to Kern, or Herdtle, whether taken alone or in combination, teaches or suggests the claimed features recited in independent Claims 1 and 12. Thus, Applicants respectfully request that the rejections of independent Claims 1 and 12 under 35 U.S.C. § 103(a) be withdrawn and the independent claims allowed.

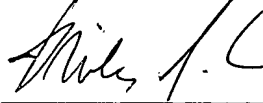
Applicants respectfully assert that Claims 2-6 and 13-25 are allowable for the same reasons as the independent claims from which they depend, as well as for their own features. Thus, Applicants respectfully request that the rejections of dependent Claims 2-6 and 13-17 under 35 U.S.C. § 103(a) be withdrawn, and the allowance of dependent Claims 2-6 and 13-25.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-6 and 12-25 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Registration No. 25,599
Attorney of Record

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/03)

Philip J. Hoffmann
Registration No. 46,340

GJM/PH/jyh
I:\ATTY\PH\21S\212284\PROP AMEND 6.2.04.DOC